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Docket No.: Z&PINFN10277

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By: _____ Date: January 29, 2002

UNITED STATES IN THE PATENT AND TRADEMARK OFFICE

Applicant	:	Walter Hartner et al.
Applic. No.	:	10/027,533
Filed	:	December 26, 2001
Title	:	Method for Fabricating a Precious-Metal Electrode

LETTER

Hon. Commissioner of Patents and Trademarks,
Washington, D. C. 20231

S i r :

Enclosed please find a copy of the English translation of the International Preliminary Examination Report for the above-identified application. Please enter it into the file.

Respectfully submitted,

_____
For Applicants

Date: January 29, 2002

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Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 99 P 2117P	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/DE00/02033	International filing date (*day month year*) 23 June 2000 (23.06.00)	Priority date (*day month year*) 25 June 1999 (25.06.99)
International Patent Classification (IPC) or national classification and IPC H01L 21/02		
Applicant INFINEON TECHNOLOGIES AG		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☒ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
22 November 2000 (22.11.00)	17 September 2001 (17.09.2001)
Name and mailing address of the IPEA EP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/DE00/02033

I. Basis of the report

1. With regard to the **elements** of the international application:*

☐ the international application as originally filed

☒ the description:
pages 1-19, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☒ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages 1-15, filed with the letter of 23 July 2001 (23.07.2001)

☒ the drawings:
pages 1/5-5/5, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

V. **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-15	**YES**
	Claims		**NO**
Inventive step (IS)	Claims	1-15	**YES**
	Claims		**NO**
Industrial applicability (IA)	Claims	1-15	**YES**
	Claims		**NO**

2. Citations and explanations

I. Claims 1 to 3:

1. Document US-A-5 320 978 (D1), which appears to contain the closest prior art, describes a method for the elective deposition of platinum on a substrate (see column 2, line 16 to column 4, line 27, and Figure 1), which could easily be part of a method for producing a noble metal electrode for a storage capacitor. The method according to D1 comprises the following steps: preparing a substrate (10) with at least one catalytically active connection region and at least one catalytically inactive insulation region (12); and feeding of at least one compound of a noble metal to the substrate, the noble metal being selectively deposited on the catalytically active connection region.

2. Although the platinum deposition in the method according to D1 starts on the substrate, in the course of the deposition process the connection region is covered with platinum, platinum being autocatalytic. The catalytically active connection region is thus formed from a noble metal.

3. The method according to Claim 1 differs therefrom by the temperature during the deposition process, by the noble metal compound, which as per D1 must not be organic, and by the structuring of the connection region or the planarisation of the connection and insulating regions.

4. A person skilled in the art of noble metal deposition would take into account the article by Ziling Xue et al. entitled "Organometallic chemical vapor deposition of platinum. Reaction kinetics and vapor pressures of precursors" which was published in Chemistry of Materials by the American Chemical Society, Washington, US, Vol. 4, No. 1 (1992), pages 162-166, XP000267889, ISSN: 0897-4756 (D2). Said document describes the chemical deposition of platinum comprising an organometallic compound (see page 163, right-hand column, second paragraph to page 164, left-hand column, first paragraph; page 165, right-hand column, second paragraph; and page 166, right-hand column, third paragraph), which is expressly characterised as being suitable for selective deposition. The temperature in the deposition zone ranges from 25°C to 180°C and therefore overlaps considerably with the range as per Claim 1.

5. A person skilled in the art would readily use the organometallic carrier gas tested in document D2 in a method as per document D1 and would also adapt the deposition temperature to the conditions. D1 does not, however, indicate that the material of the connection region is structured or planarised. Claim 1 therefore appears to meet the requirements of PCT Article 33(2) and (3).

6. Claims 2 and 3 are dependent on Claim 1, i.e. they comprise all the features of Claim 1. Since Claim 1 appears to meet the requirements of PCT Article 33(2) and (3), the same can clearly also be said of Claims 2 and 3.

II. Claims 4 to 15:

1. Document D1 describes a method that can be used to produce a noble metal electrode for a storage capacitor, said method including the preparation of a substrate with at least one catalytically active connection region and at least one catalytically inactive insulation region, the catalytically active connection region comprising platinum during the course of the deposition process, and the feeding of $Pt(PF_3)_4$ to the substrate, the noble metal being selectively deposited on the catalytically active connection region and the noble metal electrodes being formed.

2. The method according to Claim 4 differs therefrom by the temperature during the deposition process, which as per D1 should be at least 150°C, and by the structuring of the connection region or the planarisation of the connection and insulating regions.

3. Document D1 also states, however, that temperature is a factor that influences selectivity (see column 3, lines 4-8) and that selectivity becomes poorer when the temperature is increased. The example in document D1 refers to a polyimide insulation region; if, however, a person skilled in the art were to select a different material, the

temperature would again have to be determined. He would therefore discover the range specified in Claims 4 and 5 by the normal optimisation of parameters. Nevertheless, document D1 does not indicate that the material of the connection region is structured or planarised.

4. Consequently, Claims 4 and 5 appear to meet the requirement of PCT Article 33(3).

5. Claims 6 to 15 are dependent on Claims 1 or 4, i.e. they comprise all the features of one of these claims. Since Claims 1 and 4 appear to meet the requirements of PCT Article 33(2) and (3), it appears that the same can also be said of Claims 6 to 15.

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

1. Independent Claims 1 and 4 have not been drafted in the two-part form defined by PCT Rule 6.3(b). However, the two-part form would appear to be appropriate in this case. Consequently, the features known in combination from the prior art (document D1) should be set out in the preamble (PCT Rule 6.3(b)(i)) and the remaining features specified in the characterising part ((PCT Rule 6.3(b)(ii)).

2. The features of the claims are not followed by reference signs placed between parentheses (PCT Rule 6.2(b)).

3. Contrary to PCT Rule 5.1(a)(ii), the description does not cite document D1 nor the relevant prior art disclosed therein.

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SERIAL NO: 10/627,533
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